

**INITIAL STATEMENT OF REASONS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF THE STATE FIRE MARSHAL**

**REGARDING THE 2016 CALIFORNIA RESIDENTIAL CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2.5**

2016 INTERIM RULEMAKING CYCLE

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

Health and Safety Code Section 18928:

The specific purpose of this rulemaking effort by the Office of the State Fire Marshal (SFM) is to act in accordance with Health and Safety Code section 18928, which requires all proposed regulations to specifically comply with this section in regards to the adoption by reference with amendments to a model code within one year after its publication.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies addressed in the 2015 International Residential Code and published as the 2016 California Residential Code.

The general purpose of this proposed action is principally intended to update the 2016 California Residential Code (California Code of Regulations, Title 24, Part 2.5) based upon updated information or recent actions of the SFM. This proposed action:

- Repeal certain amendments to the 2015 International Residential Code and/or California Residential Standards not addressed by the model code that are no longer necessary nor justified pursuant with Health and Safety Code 18930(a)(7).
- Adopt and implement additional necessary amendments to the 2016 California Residential Code that address inadequacies of the 2015 International Residential Code as they pertain to California laws.
- Codify non-substantive editorial and formatting amendments to the 2016 California Residential Code.

[Item 1. Multipurpose Residential Fire Sprinkler Systems clarification and modifications.]

**R313.3.5
Amendments to NFPA 13D in Chapter 44**

The OSFM is proposing the above modifications to provide clarity on the safety factor in the residential fire sprinklers hydraulic calculations, based on the recommendations from the 2016 Residential Fire Sprinklers Working Group.

Rationale: Multipurpose residential fire sprinkler systems are being installed across the State. The 2013 edition of NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, defines a *Multipurpose Piping Sprinkler System* as “a piping system intended to serve both domestic needs in excess of a single fixture and fire protection needs from one common piping system throughout the dwelling unit(s).” In multipurpose sprinkler system the sprinkler system and plumbing system are supplied from a common cold water distribution system.

When performing hydraulic calculations of residential fire sprinkler systems, Section R313.3.5 of the CRC requires 5 gpm to be added to where the systems are interconnected. There has been confusion among the licensed design professionals and enforcing agencies on where the 5 gpm should be added on multipurpose systems’ calculations.

During the Phase 2 Working Group in 2009, a survey was conducted of jurisdictions with a residential sprinkler ordinance to see if they required a safety factor to be added into the calculations beyond the 5 gpm. The results of the survey showed local ordinances required an additional 5-25 gpm safety factor. The Phase 2 Working Group agreed on a 5 gpm safety factor to ensure that if a plumbing fixture was being used, diminishing water supply would not impact the residential fire sprinkler required water.

After evaluating the original intent of the amendment to CRC Section R313.3.5, the current Working Group determined 2.5 gpm should be added to each of the two remote plumbing fixtures on multipurpose systems. This requirement would match the original intent of the 5 gpm for standalone sprinkler systems that share a water supply. Figure 1 shows an illustration of a multipurpose system. It shows the two sprinklers used in the calculations and the two locations where 2.5 gpm are being added to the plumbing fixtures.

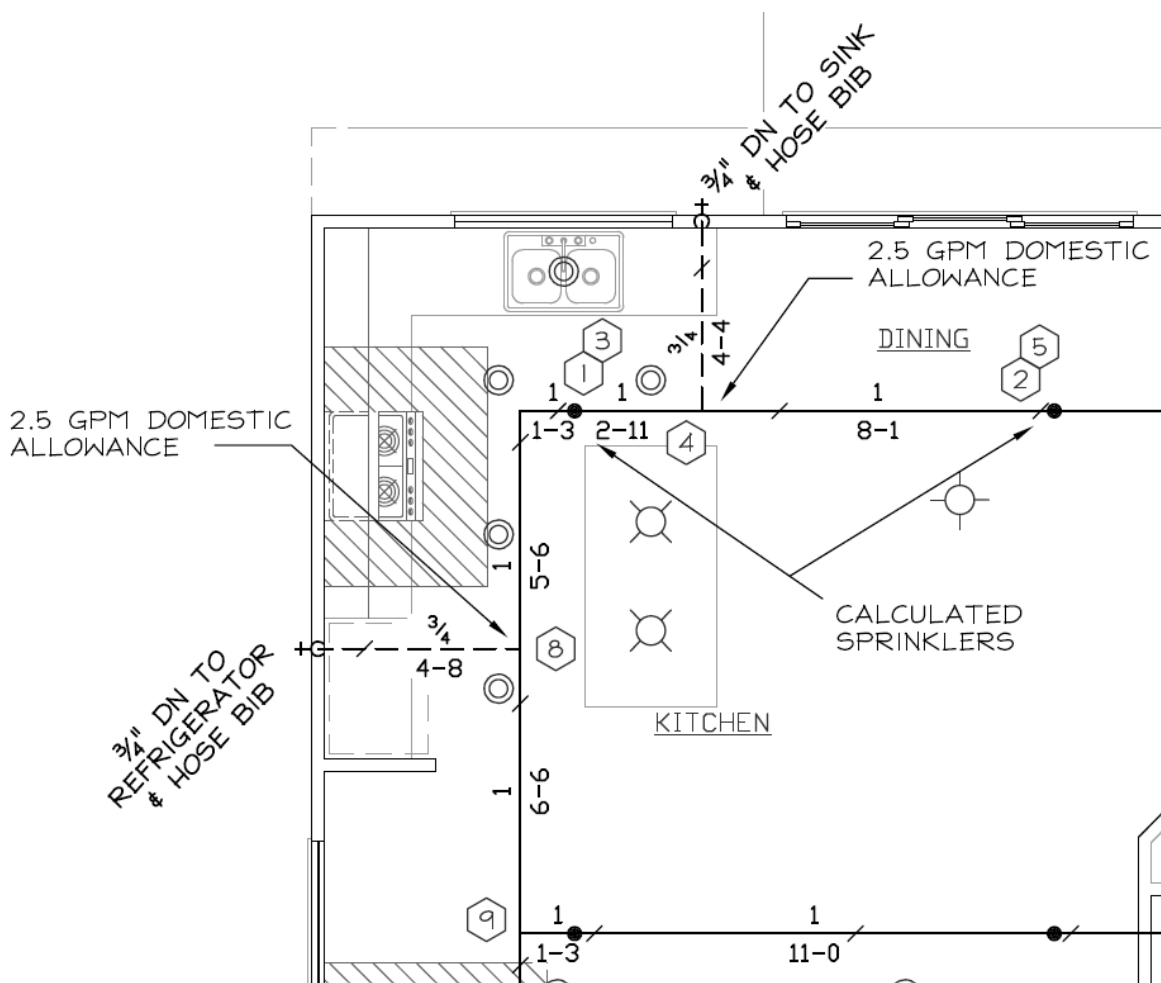


Figure 1- Multipurpose System 2.5 gpm example.

[Item 2. Stand-alone Pump and Tanks in residential fire sprinklers clarification and modifications.]

R313.3.5.2

R313.3.5.2.1

Amendments to NFPA 13D in Chapter 44

The OSFM is proposing the above modifications to provide clarity on the safety factor in the residential fire sprinklers hydraulic calculations and the use of stand-alone pump and tank systems in residential fire sprinkler system. These proposals are based on the recommendations from the 2016 Residential Fire Sprinklers Working Group.

Rationale: The OSFM is proposing the above modifications for the use of stand-alone pump and tanks in residential fire sprinkler systems. NFPA 13D and the International Residential Code (model code for California Residential Code) allow stand-alone pump and water storage tanks. The Residential Fire Sprinkler Installation Task Force finalized the Phase II report in 2009. The Task Force amended the CRC to require tanks and pumps to serve both domestic and fire sprinkler systems. The justification for this amendment was as follows:

“It was determined that where homes are supplied by a well, pump, tank or combination of those components, the water reliability of the water supply is best underwritten by requiring that both domestic and fire systems be supplied by the same source. This finding was based on empirical and anecdotal evidence obtained through on-line surveys of fire sprinkler industry and fire service members and from within the task force. Several respondents from the fire service, particularly in the Eastern United States where booster pumps are more commonly required because of low working pressures in water mains, had personally experienced non-functioning fire sprinkler water supplies due to failed testing and maintenance. This was also the experience of contractor members of the sub-group in California.”

Note: Pressurized tanks are allowed, but are covered by NFPA 13D in other sections of the standard. Pressurized tanks should be approved by the local enforcing agency.

The 2016 Residential Fire sprinkler Working Group evaluated the need to have stand-alone tank and pumps that only supply the residential fire sprinkler system. These systems would commonly be used where residential sprinklers are being added to existing buildings (detached garage conversions), when water supplies can supply the domestic water demand but not fire sprinkler demand, and areas where the cost to provide an upgraded water meter for fire sprinklers was cost prohibitive.



Figure 2- Pump and Tank for NFPA 13D Systems

Stand-alone pump and tank packages are an option when connecting to a local water purveyor

is cost prohibitive or the city water does not supply the required demand for the sprinkler system. The Working Group examined the existing state amendment and determined, with a set of conditions, that a stand-alone tank and pump can be used to supply residential fire sprinkler systems only.

The following conditions are needed to overcome the 2009 Phase II Task Force *concerns*:

- *The pump shall be connected to a circuit breaker shared with a common 220 volt house hold appliance (E.g. range, oven, dryer).* When a pump controls both domestic and fire sprinkler systems the occupant will ensure that the pump is on and functioning. Within a standalone pump, there is potential to the pump to be turned off and not function in a fire situation. The Working Group felt that by requiring the pump to be connected to another major appliance, that the pump would not be accidentally or intentionally turned off at the electrical panel.
- *The pump shall be a stainless steel 240 volt pump.* There was concern with the 2009 Phase II Task Force that the pump may not be used for a number of years. When a fire event did occur, there was potential for the pump to be seized. The current Working Group felt that a stainless steel 240 volt pump would be able to overcome not being used for several years.
- *A valve shall be provided to exercise the pump. The discharge of the exercise valve shall be piped to the tank. A sign shall be provided stating "Valve must be opened monthly for 5 minutes."* As with the item above, the current Working Group felt that there needed to be a way to exercise the pump. The Working Group felt a valve should be provided that discharges directly back into the tank to allow the occupant to easily exercise the pump. It was also felt that a sign should be provided for the occupant to know the frequency and the duration needed to properly exercise the pump.
- *A means for automatically refilling the tank level, so that the tank capacity will meet the required water supply duration in minutes shall be provided. Backflow, where required, shall be provided by an airgap or other approved methods.* Absent of a regulatory mandate for the inspection, testing, and maintenance to be performed on residential fire sprinkler systems, an automatic refill mechanism will help to ensure an adequate water supply.

The Working Group felt that the bullet points above would mitigate noted concerns and potential risk from the 2009 Phase II Task Force. Occupants will need to be responsible for the maintenance, as they are with the maintenance of smoke and carbon monoxide alarms.

The OSFM agrees with the Working Group and is proposing two code changes to the California Codes in the next code cycle to clarify the use of stand-alone tank and pump.

Changes after the CAC

The OSFM made the changes to address the concerns of the Committee. The change was making the test connection return to the tank is permissible. It was confirmed the 240v was not an error.

[Item 3. Skylights in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

R337.8.2

R337.8.2.1

The OSFM is proposing the modifications to promote fire and life safety issues in the Wildland Urban Interface area. The proposals are based on the recommendations from the 2016 Wildfire Protection Building Construction Task Force.

The subgroup on skylights was concerned about the potential for fire penetration via skylights, when properly used and closed. Therefore, it proposed to treat skylights as windows or other glazing. All types of skylights shall be constructed to meet the same minimum fire resistance requirements applicable to exterior windows or other acceptable glazed openings. The recommendation was that the change be material neutral.

2016 CBC Section 1505.1.1 requires a Class A rated roof covering assembly (ASTM E108 or UL 790) in Very High Fire Hazard Severity Zone (VHFHSZs) for new construction and should more than 50% of an existing covering be altered, repaired or replaced. 2016 CBC Chapters 7A and 15 (other than an Exception to Section 1505.1 do not address skylights installed as part of the roof covering assembly. The exception to CBC Section 1505.1 refers to Chapter 24 (glass & glazing) or Section 2610 (light-transmitting plastic skylight glazing). CBC Section 2404 (wind, snow, seismic and dead loads on glass), CBC Section 2405 (sloped glazing and skylights), and CBC Section 2610 does not include or reference the applicable WUI requirements in Chapter 7A which also do not address skylights in VHFHSZs.

Skylights installed per applicable 2016 CBC requirements are not required to provide the minimum Class A rated roof covering assembly of the new, altered, repaired, or replaced roof covering assembly.

Rationale:

Following the October 1991 Oakland Hills Fire, the California Building Standards Commission formed a Working Group to assist the OSFM in conducting fire research and developing regulatory measures to mitigate property damage from Wildland-Urban Interface fires. As a result, CBC, Chapter 7A-Wildland-Urban Interface Code was created. The provisions and standards contained within CBC Chapter 7A have been used successfully for many years in resisting wildland-urban interface fires. More particularly, the performance standard used for roofing materials and roof assemblies have been justified by the empirical data compiled and observations made, under wildfire conditions, of homes constructed in the wildland-urban interface since adoption of Chapter 7A. While overall performance with respect to the roof as a pathway to home loss was markedly improved, homes were lost to wildfires when ignition occurred within the attic area.

The two openings into the attic were attic vents and skylights. Driven by Chapter 7, the OSFM working with ASTM E05.14, Exterior Exposures Committee established the test protocols and apparatus for vents that would effectively limit flame and ember intrusion into the attic space. The inclusion of skylights under CBC Section 708A.2 Exterior Glazing, addresses the remaining pathway of flame and embers through the roof, and effectively completes the ignition resistant envelope of fire protection for homes in the wildland-urban interface. Including skylights in Chapter 7A provides the designers, owners, developers, building and fire officials, as well as subsequent homeowners, additional guidance in resisting wildland-urban interface fire exposure.

Item 4. Garage doors in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

R337.8.4

The OSFM is proposing the modifications to promote fire and life safety issues in the Wildland Urban Interface area. The proposals are based on the recommendations from the 2016 Wildfire Protection Building Construction Task Force.

The 2016 CRC and CBC provide mandatory prescriptive requirements for newly-constructed residential and non-residential structures. Model International Residential and Building Codes are provided with the 2015 International Wildland-Urban Interface Code (IWUIC) are different than the California Building Standards.

Garage doors were identified by the Task Force as an area of significant risk for house fires during a wildfire event. Unlike IWUIC that exempts “vehicle access doors”, the California exterior wildfire exposure building standards include “garage doors” with all other exterior door requirements. California building standards address door requirements, glazing and fire-resistive construction. The risks presented by the size of the garage opening and additional costs in meeting exterior door standards warranted additional research and investigation to protect property from fire during a wildfire event. Garage doors are called out in CBC Section 708A and CRC section R337.8.

Additional standards of protection were evaluated to the hazards of radiation, convection and flying embers. Considerations were made for permitting replacement garage doors, workmanship to create tight-fitting installations, weather stripping and fire-stopping assemblies, including intumescent materials surrounding the opening. Weather stripping proved an agreeable option to all members, and additional research topics were suggested for future investigation.

Rationale:

The Wildfire Task Force determined that weather stripping is an economically feasible and reasonable improvement that can limit airflow across the pressure zones on either side of door assemblies. Limiting air flow by requiring weather stripping on all doors, including garage doors will help prevent burning embers from entering or lodging in open gaps between doors and their openings. Noncombustible building and door materials will make ignition less likely however, the Task Force’s opinion is that even combustible weather stripping material will aid in resisting ember movement through the exterior door assembly that could start interior fires. Ignition resistance and minimum heat release rates were considered for weather stripping, however, the market availability of weather stripping products with improved fire performance were not researched or evaluated for this proposal. The Task Force believes that “closing the gaps” in the garage door and assembly will help reduce fire movement to building interiors.

Changes after the CAC

The OSFM made the changes to address the concerns of the Committee. The changes were to limit the regulations to the exterior garage doors and exempt the weather stripping if the gap was less than an 1/8 of an inch.

[Item 5. Accessory Structures in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

R337.1.3

R337.1.6

R337.10.1

R337.10.2

R337.10.3

R337.10.3.1

R337.10.3.2

R337.10.3.3

R337.10.4

The OSFM is proposing the modifications to promote fire and life safety issues in the Wildland Urban Interface area. The proposals are based on the recommendations from the 2016 Wildfire Protection Building Construction Task Force.

Rationale:

The 2007 CBC provisions in section 704A.5.1 on ancillary buildings and structures led to inconsistent application and or misapplication of Chapter 7A requirements to different types of ancillary buildings and no direction on which provisions of Chapter 7A should be applied to other types of ancillary structures.” The 2016 CBC Section 710A requirements for ancillary buildings apply variably to accessory buildings not covered by Section 701A.3, miscellaneous structures that are attached to the primary building, and detached accessory buildings or miscellaneous structures in ways that are difficult to enforce reasonably and consistently.

To help clarify the existing requirements the subgroup recommends two additions to Section 701A.3 to assist the user in correlating the application of requirements between Section 701A.3 and Section 710A, and two additional exceptions to Section 701A.2. There is no change in regulatory effect for the proposed modifications to either of the application provisions.

The recommended amendments to Section 710A.3 will clarify the specific locations where the requirements apply without changing the existing regulatory effect.

There exists the very real likelihood that any number of unpermitted accessory buildings, miscellaneous structures, and combustible personal property items such as vehicles and patio furniture located near the building will “pose a significant exterior exposure hazard to applicable buildings during wildfires.” These are realistic hazards that are outside the scope and purpose of the California Building Standards and should be addressed by other hazard mitigation strategies such as public education, real estate requirements, or fire code enforcement.

[Item 6. Referenced Standards in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

R337.3.5.2.1

R337.3.7

R337.4.2

R337.4.3

R337.4.4

R337.5.2

R337.5.3

R337.6.2

R337.6.3

R337.7.3

R337.7.3.1

R337.7.3.2

R337.7.5

R337.7.6

R337.7.7

R337.7.8

R337.7.9

R337.8.2

R337.8.3

R337.9.3

R337.9.4

R337.9.4.1

R337.9.4.2

R337.9.5

Chapter 44 Referenced Standards –ASTM

E84

E2632/E2632M

E2707

E2726/E2726-2012a

E2957

The OSFM is proposing the modifications to promote fire and life safety issues in the Wildland Urban Interface area. The proposals are based on the recommendations from the 2016 Wildfire Protection Building Construction Task Force.

It was identified by the wildfire Task Force that the OSFM standards, which were developed in the 1990s, have not been revised and updated in the intervening years. It was also identified that the ASTM E05 committee (on fire standards) had developed a number of standards that are updates and improvements on the OSFM standards and that they are standards that are being maintained and updated on a regular basis by a consensus standards committee. The subgroup on referenced standards was tasked with identifying the ASTM standards that were updates (and improvements) on the OSFM standards. A key further concept is that the ASTM standards do not include pass/fail criteria while the OSFM standards do contain them. Therefore, the task of the subgroup was to add wording equivalent to the OSFM criteria wherever the ASTM standards were being referenced.

The subgroup also noticed that no ASTM standard exists that is equivalent or similar to the California Referenced Standards Code (Title 24, Part 12), *Exterior Windows SFM Standard 12-7A-2* and that this OSFM Standard needs to be retained.

It was also noticed that, for exterior vents, no ember penetration test exists within the OSFM set of tests, but that ASTM has issued ASTM E2886 but that the ASTM E2886 test was added into the 2016 California Building Standards (CBC 7A / CRC R337), with pass/fail criteria that ensure no ember penetration or flame intrusion. However, small modifications are necessary in this section because it needs to be clear that ASTM E2886 cannot be “passed” but must be met with the appropriate criteria. Also, the alternates to California Referenced Standards Code *Ignition-Resistant Material SFM Standard 12-7A-5* need to be included.

A discussion was held as to whether the OSFM standards should be deleted and it was decided to recommend that they be retained because manufacturers with materials or products that have already been approved would not have to retest their products for the next code edition. It was also noticed that the ASTM standards are living documents that are likely to be revised and

updated on a regular basis while the OSFM standards are likely to remain as is for the foreseeable future. Therefore, it was expected that the ASTM standards would have better likelihood of being maintained and updated for continued use in the code.

Because of the likely future utility of the ASTM standards, they are being proposed to be referenced first in each case, but without making any difference in options. It was made clear in the proposal that the code needs to accept passing either test (OSFM or ASTM with the conditions of acceptance shown) as equivalent for code purposes.

Comparison of SFM Tests published in the 2016 California Referenced Standards Code with ASTM Tests

- Exterior Wall Siding and Sheathing SFM Standard 12-7A-1: equivalent to ASTM E2707-2015 *Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure Conditions of Acceptance*. If one of the three tests fails to meet the Conditions of Acceptance, three additional tests shall be run. All of the additional tests must meet the conditions of acceptance.

Conditions of Acceptance:

1. Absence of flame penetration through the wall assembly at any time.
2. Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70-min test.

- Exterior Windows SFM Standard 12-7A-2: No ASTM equivalent exists

Conditions of Acceptance:

1. Duration of direct flame exposure. To pass this test standard, the window and window assembly shall withstand 8 minutes of direct flame exposure with the absence of flame penetration through the window frame or pane, or structural failure of the window frame or pane. Absence of flame penetration through the wall assembly at any time.
2. Flame penetration or structural failure. Flame penetration or structural failure of the flame or pane anytime during the test constitutes failure of this test standard.

- Horizontal Projection Underside SFM Standard 12-7A-3 (under eave): equivalent to ASTM E2957-2015 *Standard Test Method for Resistance to Wildfire Penetration of Eaves, Soffits and Other Projections*.

Conditions of Acceptance:

If one of the three tests fails to meet the Conditions of Acceptance, three additional tests shall be run. All of the additional tests must meet the Conditions of Acceptance.

1. Absence of flame penetration of the eaves or horizontal projection assembly at any time.
2. Absence of structural failure of the eaves or horizontal projection subassembly at any time.
3. Absence of sustained combustion of any kind at the conclusion of the 40-min test.

- Decking SFM Standard 12-7A-4: contains 2 tests and one alternate.

Test Part A – Under Deck Flame Test: Equivalent to ASTM E2632/E2632M-2013e1 Standard Test Method for Evaluating the Under-Deck Fire Test Response of Deck Materials.

Test A Conditions of Acceptance.

If one of the three tests fails to meet the Conditions of Acceptance, three additional tests shall be run. All of the additional tests must meet the Conditions of Acceptance.

1. Effective net peak heat release rate of less than or equal to 25 kW/ft² (269 kW/m²)
2. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-min observation period.
3. Absence of falling particles that are still burning when reaching the burner or floor.

Test Part B – Burning Brand Exposure Test: Equivalent to ASTM E2726/E2726M-2012a Standard Test Method for Evaluating the Fire-Test-Response of Deck Structures to Burning Brands.

Test B Conditions of Acceptance:

If one of the three tests fails to meet the Conditions of Acceptance, three additional tests shall be run. All of the additional tests must meet the Conditions of Acceptance.

1. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-min observation period.
2. Absence of falling particles that are still burning when reaching the burner or floor.

Alternate Method A (12-7A-4A) – Under Deck Flame Test: Equivalent to ASTM E2632/E2632M-2013e1 Standard Test Method for Evaluating the Under-Deck Fire Test Response of Deck Materials.

Alternate Method A Condition of Acceptance:

If one of the three tests fails to meet the Condition of Acceptance, three additional tests shall be run. All of the additional tests must meet the Condition of Acceptance.

1. Peak heat release rate of less than or equal to 25 kW/ft² (269 kW/m²).

- Ignition-Resistant Material SFM Standard 12-7A-5: equivalent to ASTM E84-2015b *Standard Test Method for Surface Burning Characteristics of Building Materials*, when tested in accordance with the test procedures and when the test is continued for an additional 20 minute period, for an “extended” 30 minute total period, with the following conditions of acceptance:

Conditions of Acceptance:

1. Material shall exhibit a flame spread index not exceeding 25 and shall show no evidence of progressive combustion following the extended 30-minute test.
2. Material shall exhibit a flame front that does not progress more than 10-1/2 feet (3200 mm) beyond the centerline of the burner at any time during the extended 30-minute test.

Rationale:

1. A decision was made to add the equivalent ASTM standards to the California Referenced Standards Code SFM Standards when they exist. ASTM standards exist covering most (but not all) the SFM Standards.
2. ASTM E05 (fire) standards typically have no pass/fail criteria but the SFM Standards do and that needs to be added. The criteria need to be in Chapter 7A and not in chapter 35 because they are not contained within the ASTM standards.
3. Retaining the SFM Standards is important because there are materials/products that have received approval based on them and they should not need to be retested with the new code.
4. In future it is likely that ASTM standards may be modified and updated and, therefore,

it is likely that, in future editions the SFM Standards may be replaced (because they do not change). Therefore, the ASTM standards have been placed as the first option with the SFM Standards as the second option.

5. Passing either test is considered equivalent for the code in the proposed text.
6. California Referenced Standards Code SFM Standard 12-7-A5 is equivalent to the “extended ASTM E84 or UL 723” as a requirement for “ignition resistant materials”. However, neither ASTM E84 nor UL 723 describe the “extended” protocol for the additional 20 minutes (for a total of 30 minutes) nor pass/fail criteria and those have been added. The SFM Standard has been retained as an alternative option. Moreover, neither ASTM E84 nor UL 723 describes any option for “additional 20 minute” testing and so this must be described in the code, just like it is in the IBC.
7. ASTM E2707 is very similar to (and based on) California Referenced Standards Code SFM Standard 12-7-A1. However, ASTM E2707 does not have pass/fail criteria and those have been added. The CA OSFM standard has been retained as an alternative option.
8. ASTM E2957 is very similar to (and based on) California Referenced Standards Code SFM Standard 12-7-A3. However, ASTM E2957 does not have pass/fail criteria and those have been added. The SFM Standard has been retained as an alternative option.
9. No SFM Standard test exists for exterior vents but ASTM E2886 covers that issue. Therefore, this test was added to the CBC code in the 2016 edition. However, ASTM E2886 does not have pass/fail criteria and those have been added, based on no flame intrusion and no ember penetration. A small change is proposed for this section because ASTM E2886 itself has no pass-fail requirements and cannot be “passed”. Also, the alternates to California Referenced Standards Code SFM Standard 12-7-A-5 needed to be included
10. California Referenced Standards Code SFM Standard 12-7-A4 contains two tests and they have been issued separately as ASTM E2632 and ASTM E2726. However, neither ASTM E2632 nor ASTM E2726 have pass/fail criteria and those have been added. The SFM Standard has been retained as an alternative option.
11. ASTM E2632 is very similar to (and based on) California Referenced Standards Code SFM Standard 12-7-A4A (and a portion of SFM Standard 12-7-A4). However, ASTM E2632 does not have pass/fail criteria and those have been added. The SFM Standard has been retained as an alternative option.
12. CBC Section 709A.3 on decking surface, item 1 had duplicate requirements for California Referenced Standards Code SFM Standard 12-7-A4 and California Referenced Standards Code SFM Standard 12-7-A5 and this has been separated into two subparagraphs, with the corresponding pass fail criteria. The SFM Standards have been retained as an alternative option.
13. California Referenced Standards Code SFM Standard 12-7-A2 does not have an ASTM equivalent and has been retained without an alternative.

[Item 7. Editorial modifications of regulations for vegetation management in Wildland-Urban Interface Areas.]

R337.1.5

The OSFM is proposing the modifications to promote fire and life safety issues in the Wildland Urban Interface area. The proposals are based on the recommendations from the 2016 Wildfire Protection Building Construction Task Force.

This section contains items that need general clean up. No changes in regulatory effect. The proposed wording below incorporates also the changes to the code sections recommended above. There was other clean up within the sections above, which are shown in the respective sections.

Rationale:

All the changes are intended simply to eliminate non-mandatory language (the term “may”) without altering the intended meaning. Non-mandatory language has the potential to create potential lack of clarity and/or of enforceability. Note, however that the proposed wording for the change in this section incorporates also the other changes recommended for these sections.

[Item 8. Accessory Dwelling Units.]

R313.2

State mandated change. Senate Bill 1069 mandated allowances for Accessory Dwelling Units to facilitate affordable housing.

[Item 9. Incorporation and correlation of the IRBC Photovoltaic regulations system into the California Codes]

R324.6

R324.6.1

R324.6.2

R324.6.2.1

R324.7

R324.7.1

The OSFM is proposing the above modifications based on the proposal (F85-16) approved for the 2018 IFC Section 605.11 (605.11 is also in Section 3111 of the California Building Code and Section R324.6 of the California Residential). These modifications are primarily editorial and provide additional clarification. The following is the rationale by the original proponent that proposed the modifications. This code proposal has been heard and accepted by the ICC Fire Code Committee at the ICC Code Hearings held April-May, 2016 in Louisville, KY. Final Action of these modifications was approved in October 2016, in Kansas City, MO. The SFM is bringing these proposals forward in part to further implement the State’s Renewable Portfolio Standard (RPS) and provide necessary tools for enforcement officials, building owners, manufacturers and the construction industry.

The following is the Rationale for support of the proposed modifications at the ICC:

We propose to introduce the applicable rooftop access concepts of International Fire Code Section 605.11 into the International Residential Code to provide for uniform design and enforcement. Many jurisdictions currently provide enforcement of the solar photovoltaic power systems guidelines in IFC Section 605.11, or other locally adopted provisions through the building department/official which typically do not enforce the International Fire Code.

Furthermore, the intent to have these provisions reproduced into the IRC is to afford local communities the ability to provide adequate enforcement without the reference to a different code or standard. (IFC 605.11.3.3 through 605.11.3.3.3 are not reproduced; such provisions are not applicable to one- and two-family dwellings or townhouses.)

In the Group B development process in 2013, parallel proposals were submitted in the IFC and IRC to clarify issues of scope and to ensure complete coverage of homes whether they are designed and built under the International Building Code or International Residential Code. 2015 IFC 605.11.1.2 covers photovoltaic systems installed on Group R-3 buildings. The exception to 605.11.1.2 states: "These requirements shall not apply to structure designed and constructed in accordance with the International Residential Code." Proposal RM95-13 sought to include applicable provisions in the IRC for complete coverage. At the final hearings, RM95-13 was disapproved, leaving a gap in coverage for one- and two-family dwellings and townhouses. This proposal seeks to fill that gap in coverage.

The residential rooftop access and setback provisions in this proposal are improved over those found in the 2015 International Fire Code. The language has been simplified, and redundant language has been removed. In a collaborative effort with representatives from the International Association of Fire Fighters (IAFF), the requirements have been simplified. Requirements that were deemed unnecessary are removed, and access provisions are intended to be more effective for the fire service. The concepts for ridge setbacks varying with coverage of the PV system originated with the City of Boulder fire service.

There is a parallel proposal for the IFC. The residential portion of the IFC proposal is for Group R-3 Occupancies. This proposal uses the residential portions of the IFC proposal to serve one- and two-family dwellings and townhouses constructed in conformance with the IRC. There is also a parallel effort in the NFPA 1 Fire Code development process. Proposals with very similar technical provisions were approved by the NFPA 1 technical committee into the First Revision of 2018 NFPA 1 Fire Code. These efforts to update the IFC will play a role in the public comment process for NFPA 1. At the time of this submittal, NFPA 1 is not yet in the public comment period.

Editorial Changes after the CAC

The CAC committee approved the item as submitted. After the CAC the OSFM found that the numbered of two California amendments were not out of sequence and several section that were being replaced by the updated regulation were not being deleted. The changes were as follows: R324.7.2.6 become R324.7.2; R324.7.2.7 becomes R324.6.3; Sections R324.7 through R324.7.2.5 are deleted. The editorial changes were done to meet the intent of the new ICC regulations.

[Item 10. Energy Storage Systems.]

R201 DEFINITIONS

R327

R327.2

R327.3

R327.4

R327.5

R327.6

The OSFM is proposing the above modifications based on the proposal (RB171-16) approved for the 2018 IRBC. This code proposal has been heard and accepted by the ICC Fire Code Committee at the ICC Code Hearings held April-May, 2016 in Louisville, KY. Final Action of these modifications was approved in October 2016, in Kansas City, MO. The SFM is bringing these proposals to assist with the enforcement officials, building owners, manufacturers and the construction industry and provide necessary tools needed.

The following is the rationale by the original proponent that proposed the modifications at the ICC hearings:

Reason: An increased number of electrical energy storage systems (ESS) utilizing stationary storage batteries are appearing on the market to help meet the energy needs of society. This proposal does not mandate that ESS or stationary battery storage systems be provided, but includes basic safety requirements that should be applied if such systems are provided.

Comments on specific requirements:

The definition provides the code user with information on battery storage systems, and is identical to a definition being proposed for the IFC/IBC.

The UL 9540, *Outline of Investigation for Energy Storage Systems and Equipment* provides construction and performance requirements for investigating and listing stationary storage battery systems. This standard evaluates their ability to operate under both normal operating conditions and under certain fault conditions.

Since ESS is a new, evolving technology, exceptions to R327.2 are provided to allow for installations of repurposed, non-listed ESS from electric vehicles. However, a five foot separation distance from exterior walls, the property line and public ways to mitigate the performance of the equipment under fault conditions, which was not determined as part of a listing investigation. Installations that utilize ESS provided integral to electric vehicles are also allowed, provided they comply with NFPA 70 requirements that specifically cover such installations.

A final exception exempts battery systems under 1 KWh, which is slightly greater than two 12V, 40 A-H batteries. This exempts common household standby power systems for tools, alarm systems, and other appliances from having to comply with this section.

The R327.4 electrical installation requirements are based on R324.3, but include an option for inverters included as part of an ESS UL 9540 listing.

R327.5 includes ventilation requirements that must be provided for indoor installations of ESS technologies, such as those including lead-acid batteries that are capable of producing hydrogen gas during charging. The R327.6 vehicle protection requirements are based on Section M1307.3.1.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: [BCAC](#). The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will increase the cost of construction

Any cost increases for code compliant installations will be minimal, provide the equipment is installed per NFPA 70 which will require an inverter and other code mandated criteria. Listed ESS units are currently available and the proposal allows for non-listed ESS installations also.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The SFM did not rely on any technical, theoretical, and empirical study, report, or similar documents outside of those contained in this rulemaking in proposing that CBSC adopt said model code as a reference standard for the placement of existing SFM regulatory amendments for the California Building Standards Codes.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The SFM believes that the amendments to the model code any additional building standards proposed are offered in typically both a prescriptive and performance base. The nature and format of the model code adopted by reference afford for both methods, the following is a general overview of the model codes proposed to be adopted by reference as well as state modifications:

This comprehensive residential building code establishes minimum regulations for fire prevention and fire protection systems using prescriptive and performance-related provisions. It is founded on broad based principles that make possible the use of new materials and new system designs.

This code is founded on principles intended to establish provisions consistent with the scope of a building and fire code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

The International Building, Residential and Fire Code provisions provide many benefits, among which is the model code development process that offers an international forum for building and fire safety professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

CONSIDERATION OF REASONABLE ALTERNATIVES

The SFM has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The SFM has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of this code.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

The SFM has determined that this proposed action will not have a significant adverse economic impact on business. Health and Safety Code Section 18928 requires the SFM, when proposing the adoption of a model code, national standard, or specification shall reference the most recent edition of the applicable model code, national standard, or specification. Therefore, there are no other facts, evidence, documents, testimony, or other evidence on which the SFM relies to support this rulemaking.

**ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION,
ELIMINATION OR CREATION**

The Office of the State Fire Marshal has assessed whether or not and to what extent this proposal will affect the following:

- ☒ The creation or elimination of jobs within the State of California.

These regulations will not affect the creation, or cause the elimination, of jobs within the State of California.

- ☒ The creation of new businesses or the elimination of existing businesses within the State of California.

These regulations will not affect the creation or the elimination of existing business within the State of California.

- ☒ The expansion of businesses currently doing business with the State of California.

These regulations will not affect the expansion of businesses currently doing business within the State of California.

- ☒ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

These regulations will update and improve minimum existing building standards, which will provide increased protection of public health and safety, worker safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

The OSFM does not anticipate a cost of compliance with most of the proposed building standards, however, clear benefits are included in the purpose and rationale and further noted below. Items proposed in this rulemaking provide the following:

- Items 1 & 2 are proposals from the Residential Fire Sprinkler Working Group to provide clarity for the installation of residential fire sprinklers. No cost of compliance associated, benefit is provided by having clear, concise, complete and update text of the regulations and standards.
- Items 3 -7 are a correlation of the regulations from the California Building Code from the Wildfire Protection Building Construction Task Force. The regulations are to provide clarity on the construction in the high severity areas of the state. No cost of compliance associated, the benefit is provided by having clear, concise, complete regulations.
- Item 8 is state mandated change for SB 1069.
- Item 9 & 10 are proposals to adopt the model codes early. No cost of compliance associated, benefit is provided by having clear, concise, complete and update text of the regulations and standards.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

The SFM has determined that this proposed rulemaking action does not unnecessary duplicate or conflict with federal regulations contained in the Code of Federal Regulations that address the same issues as this proposed rulemaking.